

LaValle, Diane

From: Jim Rader [Rader@Alltranstek.com]
Sent: Friday, September 19, 2003 1:13 PM
To: Exemptions
Cc: Kasey, Ray <FRA>; Schoonover, William <FRA>; NEUTZLIJ@kochind.com
Subject: Application for Exemption (Koch Materials Company)



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KOCH Exemption
Compliance Manu...



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RSPA Exemptions:

Please find attached an application for exemption for Koch Materials Company. Koch Materials Company, Wichita, Kansas, requests authorization to allow for a performance-based approach to monitoring (attendance) a railroad tank car throughout the steam-heating operation. Koch materials would provide full-time monitoring of the operation during periods of product transfer out of the tank car. The level of monitoring is a function of the risks of asphalt at various temperatures.

As noted in the exemption application, Koch Materials will monitor the implementation of any granted exemption plant-by-plant (about 43 locations). In order for a plant to obtain use of the exemption, the plant will need to develop a system safety procedure. I have included an example of the system safety procedure in the attached "Koch Materials Exemption Compliance Manual." The additional files are drawings of the Dubuque, Iowa plant that are part of the Compliance Manual.

If you have any questions, please contact me.

Thanks,

Jim

James Henry Rader
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September 19, 2003

Robert A. McGuire
Associate Administrator for Hazardous Materials Safety
Research and Special Programs Admin
U.S. Department of Transportation
400 Seventh Street, SW
Attention: DHM-31
Washington, D.C. 20590-0001

Re: Application for an Exemption

Dear Mr. McGuire:

In accordance with 49 CFR 107.105, AllTranstek L.L.C., on behalf of Koch Materials Company, Wichita, Kansas, requests authorization to allow for a performance-based approach to monitoring (attendance) a railroad tank car throughout the steam-heating operation. Koch materials would provide full-time monitoring of the operation during periods of product transfer out of the tank car.

Name, mailing address, and telephone number of the applicant: AllTranstek, on behalf of Koch Materials Company, submits the following contact information:

Applicant	Agent for Applicant
Mark Shalkowski Koch Materials Company P. O. Box 2338 Wichita, Kansas 67201-2338 316.828.2173	James H. Rader AllTranstek L.L.C. 1101 W. 31 st Street Suite 200 Downers Grove, Illinois 60515 630.829.9125

State the citation(s) of the specific regulation from which relief is sought: 49 CFR 174.67(c)(2) and (i).

Transport modes: AllTranstek, on behalf of Koch Materials, seeks authorization for the rail mode of transport.

Description of exemption proposal: AllTranstek, on behalf of Koch Materials, submits a request for authorization to apply a steam-heat connection, an unloading connection, and to open a closure on a tank car with a performance-based level of monitoring. The purpose of monitoring (attendance) is to ensure that hazardous materials are safely loaded and unloaded and that in the event of an emergency, a person in attendance can rapidly halt the process.¹ This exemption application applies to the period before unloading; a period where an unloading connection is

¹ 55 FR 6758, 6759, and 57 FR 42466.

attached to a tank car, no product is flowing, and all closures on the tank are secure, except for the bolts on the hinged manway cover to allow venting of product gases.

Identification and description of the hazardous material: "Elevated temperature liquid, n.o.s. (Asphalt), 9, UN3257, III."

Procedural elements to achieve an equivalent level of safety: Based on the flow characteristics (viscosity) of asphalt at various temperatures, Koch Materials will apply a performance-based approach to monitoring the tank car during the steam-heating process. The level of monitoring is a function of the risks of asphalt at various temperatures. The risks associated with the steam-heating operation of asphalt include product liquidation, expansion, and overflow from the tank. The overall risk of employee exposure from product overflow is relatively low. Asphalt is loaded at a temperature near 350°F., and unloaded at Koch Materials at a temperature at or near 250°F. Since the material is loaded at a higher temperature than unloading, and based on the coefficient of expansion of asphalt, it is relatively unlikely that the tank will become liquid full during the unloading process due to the lower unloading temperature (given the fact that the tank was not liquid full at the loading temperature of 350°F.).

In the event that asphalt does overflow from the tank, the product will quickly start to solidify. The material does not permeate the soil, nor does it release gases that are harmful to human health or the environment. In a recent report, NIOSH concluded that the collective data from available studies on paving asphalt provide insufficient evidence for an association between lung cancer and exposure to asphalt fumes during paving.² Consequently, the risks of asphalt are generally related to exposure to the heated product in the vicinity of any spill. If granted this exemption, Koch Materials would remove employees from any potential exposure area until the risks of the material (from heating) mandates monitoring to ensure safe unload practices.

It is important to note that because of the higher temperature associated with the steam-heating process, the employee exposure risk to asphalt is less than the associated employee exposure risk from steam. Applying steam to the tank to heat the product, a process not regulated by the Department of Transportation, offers a greater risk to employees than the hot asphalt itself.³ By granting an exemption in accordance with our proposal, RSPA would help reduce the overall employee exposure risk to asphalt and steam by removing both plant and railroad employees from the potential exposure area (unloading area).

To help support this exemption request, Koch Materials gathered temperature data of asphalt during the steam-heating process. We used this data to determine the temperature rise of the product as a function of time throughout the steam-heating process. Table I, "*Temperature vs. Time*," shows the temperature curve associated with the steam-heating process for six randomly selected tank car steaming operations. The temperature curve represents a worst case, summer conditions, rate of increase. This data clearly shows that there is very little risk of employee exposure to asphalt during the early phases of the steam-heating process, mainly because the asphalt is not hot enough to expand and flow from the tank. As noted earlier, at the unloading temperature, the risk of the tank becoming liquid full is relatively low, if not impossible.

It is important to reemphasize that the risks of employee exposure to asphalt increases near the point that the material begins to liquefy, expand, and fill the tank. These risks, as noted earlier are less than the risk of the steam-heating process itself. Based on the time vs. temperature data, Tables II and III, "*Monitoring Levels*," show the levels of monitoring necessary to achieve an equivalent level of safety and to protect workers from the risks associated with hot asphalt and steam. Note that this data was taken during the summer months and the beginning temperature of the product was already at 200°F. During winter months, it's not unusual to have the receiving

² "Health Effects of Occupational Exposure to Asphalt," NIOSH, December 2000.

³ The steam-heating process is regulated by the DOT only by virtue of opening a closure on the tank to vent product gases.

product temperature below 50°F. The lower receiving product temperature requires a longer steam-heating period to reach the temperature at which Koch Materials can begin to unload the product.

Table 1

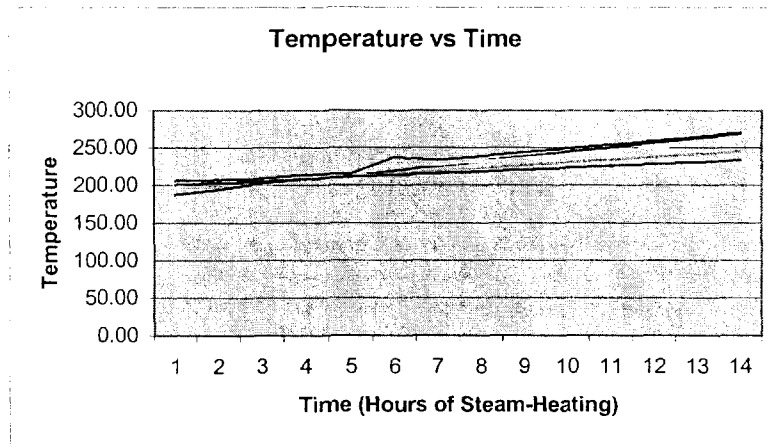


Table II
Summer Monitoring Levels
(April - September)

Time Period	Monitoring Level
Up to 12-hours of steaming	Once
After 12-hours of steaming	Every hour
During pumping and product flowing phase (unloading)	Continuous

Table III
Winter Monitoring Levels
(October - March)

Time Period	Monitoring Level
Up to 16-hours of steaming	Once
After 16-hours of steaming	Every hour
During pumping and product flowing phase (unloading)	Continuous

To additionally support the statutory requirement for an equivalent level of safety, Koch Materials will implement the following safety procedures at each of its facilities. If granted the exemption, Koch will oversee the implementation of the exemption on a site-by-site basis to ensure, through a checklist and corporate management approval, that its facilities adopt and maintain the following safety procedures that are now currently included in several DOT exemptions.⁴ In addition, these safety procedures incorporate the overall hazard communication intent of RSPA's regulation of elevated temperature materials through appropriate markings, warning signs, and lighting.⁵

⁴ See paragraph 8, Special Provisions, in DOT-E 12443.

⁵ 56 FR 49980, 49965.

- A physical description of the facility, including the hours of operation;
- A drawing of the transfer facility showing natural and manmade barriers, locations of protective equipment, locations of emergency equipment, and locations of signaling equipment;
- Procedures for monitoring the transfer facility;
- Information on the contents of the tank car;
- Procedures for securing the transfer facility;
- Equipment available for employee safety and procedures for using the equipment;
- Procedures and limitations for movement of tank cars in the vicinity of the transfer facility;
- Testing and maintenance of system components;
- Training requirements for designated employees responsible for monitoring the transfer facility;
- Procedural steps in the event of an emergency;
- Procedures for reviewing incidents to determine whether the written procedures require revision or modification to prevent future occurrences; and
- A statement about the facility's liaison with fire, police, and other appropriate government officials concerning responsibilities and resources for responding to an emergency.

To further improve the safety of plant and railroad workers, Koch Materials will apply the following sequence of steps during the steam-heating operation and the product-unloading phase:

- Apply a "blue" caution sign on the open-end(s) of the track to provide the necessary warning to railroad workers.
- Display warning signs indicating the presence of the steam connection, the opened hinged manway, and for workers to observe if any asphalt is leaking from the car or hose connections.
- At night, apply adequate lighting to the unloading area to ensure that railroad and Koch workers can visually see the warning signs and to determine the presence of any thermal hazard.
- For the loaded car of asphalt, and in preparation for unloading:
 - Set the handbrake on the tank car.
 - Chock both sides of at least one wheel on the tank car.
 - Apply the steam connections to the tank car.
 - Apply the unloading connection (transfer hose) to the tank car bottom outlet valve before the steam-heating operation.
 - Partially open the hinged-manway cover to prevent pressure build-up within the tank and the accumulation of hydrogen sulfide gases.
 - Open the steam-connection line to car to begin the heating operation.
- After the car is unloaded, remove the steam connections, unloading connection, and properly secure all valves, fittings, and the hinged manway cover.
- Remove the wheel chocks.
- Remove the blue caution sign when necessary to allow railroad workers onto the track.

These procedures do not include the use of a "derail" to protect the tank car from on coming railroad traffic. The use of a derail within any Koch Materials' facility may create an increased risk if a moving tank car would derail into the facility's process piping.⁶ The policies and procedures adopted by Koch to gain acceptance of this exemption would include site-by-site elements to control access onto a track that has a tank car connected to steam and unloading connections.

Exemption Number Markings and Shipping Paper: If approved, the exemption would authorize the continued use of tank cars unloaded by this procedure without marking the exemption number on the tank car or on the shipping paper.

⁶ Although the Occupational Safety and Health Administration requires the use of a derail for some hazardous operations, the agency does not require the use of derails for unloading asphalt.

Duration of the exemption: AllTranstek, on behalf of Koch Materials, requests an exemption of no less than two years.

Description of packaging prescribed: The packagings prescribed under this application consist of either DOT 111A or AAR 211 tank cars, equipped with either an exterior or interior heater coil.

Risk assessment, level of safety, or public interests considerations: The public will not incur any significant increase in risk if the Department of Transportation grants this exemption proposal.

The risk associated with asphalt is employee exposure (thermal burn) resulting from product overflow or leakage during the unloading process. This risk is less than the employee exposure risk associated with the steam-heating process itself. Further, the risks to the public are inconsequential since any asphalt flowing from the tank will remain near the car structure and there is relatively no vapor dispersion from the unloading and steaming area. If granted, this exemption will reduce the risk to railroad and plant workers through a performance-based approach to monitoring; where the level of monitoring increases as the risks (thermal exposure) of the asphalt increases. Further, each Koch Materials will follow several currently issued exemptions with respect to unloading tank cars, and each facility has a protection plan in place that is designed to contain any spilled material in the facility.

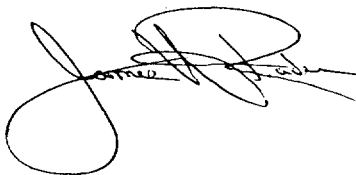
Relevant shipping and incident experience: No specific failures identified.

Summary:

If granted this exemption request, Koch Materials will improve plant and railroad employee safety through a performance-based approach to monitoring and there will be no increase level of risk to the general public. As the employee exposure risks of asphalt increase, due to increasing temperature from the steam-heating process, the level of monitoring will increase. Koch will also incorporate additional safety measures to alert plant and railroad workers about the presence of the steam-heating process and the unloading connection.

If you have any questions, please contact me at the following numbers: 630.829.9125 (office), 630.881.0309 (cell), 630.325.9978 (fax), or rader@alltranstek.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'James H. Rader', with a large, stylized loop at the end.

James H. Rader
Vice President Technical Support Services

Enclosure (1)



EXEMPTION COMPLIANCE MANUAL: TANK CAR UNLOADING

Koch Pavement Solutions
P. O. Box 64596
Saint Paul, Minnesota 55164-0596

Koch Pavement Solutions Exemption Compliance Manual

Federal regulations require that a person monitor the unloading process of a railroad tank car during the entire time that the car is connected to an unloading device. When connected to an unloading device, unloading begins when an employee opens a closure, such as the hinged manway cover. Koch's procedures require opening the hinged manway cover during the steam-heating process to vent product gases. Because of this process, Koch was required to have an employee stationed at the car during the steam-heating process, and during the period that Koch was unloading the product from the car.

Based on years of experience, Koch realized a very limited amount of risk to railroad and plant workers during the early stages of the steam-heating process. This limited risk is associated with the lower temperature of the product in the early phases of steam heating. To address this limited risk, Koch Pavement Solutions obtained a Department of Transportation (DOT) exemption to allow for a performance-based level of monitoring. The exemption authorizes three levels of monitoring: No monitoring for the first 12-hours of steaming, hourly monitoring thereafter, and continuous monitoring when the unloading (product pumping) process begins.

Each plant that chooses to adopt the exemption requirements must develop system safety procedures that address the elements in this compliance manual. The system safety procedures require corporate approval before implementation. Please contact the following individuals for additional information:

Mark Shalkowski Koch Materials Company P. O. Box 2338 Wichita, Kansas 67201-2338 316.828.2173	Jason Neutzling Koch Pavement Solutions P. O. Box 64596 Saint Paul, Minnesota 55164-0596 651.480.3837
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To help each plant develop site-specific system safety procedures, this compliance manual provides a general description of the required elements and an example response based on the Dubuque, Iowa plant. You may use the check sheet provided at the end of this document to assist you in developing the following information.

1. A physical description of the plant, including the hours of operation

The Koch Materials Company Dubuque, Iowa asphalt plant is located at 1550 Koch Court, Dubuque, Iowa on approximately 25 acres of land. The area is also known locally as "Industrial Island." The plant is adjacent to the Mississippi River and the barge dock is located at Upper River Mile 580.1. The plant consists of (36) petroleum storage tanks, (4) hot water tanks, (13) process chemical tanks, (1) hydrochloric acid tank, (1) caustic tank, (1) latex tank, (2) office buildings, an emulsion building, a garage building, a heater house building, a railcar loading/unloading area, (3) tank truck unloading areas, (3) loading racks able to load (5) tanker trucks at a time, and barge unloading dock. The plant was built and began oil storage in 1964. The plant underwent a major expansion in 1977 through 1979 with the addition of storage, processing, and shipping as asphaltic cement including asphalt cement grades, cutback asphalts, and emulsified asphalts.

The Dubuque plant operates on a seasonal nature, and the hours of operation range from 2:00am to 5:00pm Monday through Friday, with some Saturday loading in the summer; to 7:00 am - 5:00 pm in the winter.

2. A drawing of the transfer facility showing natural and manmade barriers, locations of protective equipment, locations of emergency equipment, and locations of signaling equipment

See the site map in Appendix A of this compliance manual.

3. Procedures for monitoring the transfer facility

Based on the granted DOT exemption, the following tables show the levels of monitoring necessary to achieve an equivalent level of safety, and to protect workers from the risks associated with hot asphalt and steam.

**Summer Monitoring Levels
(April - September)**

Time Period	Monitoring Level
Up to 12-hours of steaming	Once
After 12-hours of steaming	Every hour
During pumping and product flowing phase (unloading)	Continuous

**Winter Monitoring Levels
(October - March)**

Time Period	Monitoring Level
Up to 16-hours of steaming	Once
After 16-hours of steaming	Every hour
During pumping and product flowing phase (unloading)	Continuous

To further improve the safety of plant and railroad workers, Koch will apply the following sequence of steps during the steam-heating operation and the product-unloading phase:

- ☐ Apply a "blue" caution sign on the open-end(s) of the track to provide the necessary warning to railroad workers.
- ☐ Display warning signs indicating: (1) the presence of the steam connection; (2) the opened hinged manway; and (3) observance for any asphalt leaking from the car or hose connections.
- ☐ At night, apply adequate lighting to the unloading area to ensure that railroad and Koch workers can visually see the warning signs and to determine the presence of any thermal hazard.
- ☐ For the loaded car of asphalt, and in preparation for unloading:
 - ☐ Set the handbrake on the tank car.
 - ☐ Chock both sides of at least one wheel on the tank car.
 - ☐ Apply the steam connections to the tank car.
 - ☐ Apply the unloading connection (transfer hose) to the tank car bottom outlet valve before the steam-heating operation.

- Partially open the hinged-manway cover to prevent pressure build-up within the tank and the accumulation of hydrogen sulfide gases.
 - Open the steam-connection line to the car to begin the heating operation.
- ❑ After the car is unloaded, remove the steam connections, unloading connection, and properly secure all valves, fittings, and the hinged manway cover.
- ❑ Remove the wheel chocks.
- ❑ Remove the blue caution sign when necessary to allow railroad workers onto the track.

Note: *These procedures do not include the use of a “derail” to protect the tank car from on coming railroad traffic. The use of a derail within any of Koch’s plants may create an increased risk if a moving tank car would derail into the facility’s process piping.*

4. Information on the contents of the tank car

See the Material Safety Data Sheet (MSDS) located in the main office.

5. Procedures for securing the transfer facility

The plant is entirely secured within a 6-foot chain link fence topped by three strands of barbed wire, with the exception of the barge transfer area. There are two vehicle and two pedestrian gates in this perimeter. Normal and routine access to the plant is from the northwest gate and is monitored by plant personnel.

Plant gates are locked at the end of each operating period. Local law enforcement personnel regularly check the plant during non-operating hours. In addition, plant personnel make a security check on every non-operating day. A gate that is normally locked, confines access to the barge transfer area. Valves at the barge plant are locked in the closed position when not in use.

When not in regular use, all valves are in a closed position. All valves are located within the security fence. Vandalism has not been an issue at this plant. When not in service, ends of piping are capped, blank flanged or removed. The starter controls for all pumps and other electrical equipment are locked in the off position or in a site accessible only to authorized employees in non-standby or operating status. Adequate lighting is provided at loading, unloading, and process areas of the plant. In an emergency, valves can be shut off at the barge unloading plant, each tank, or the EPA/USCG jurisdictional valve located just inside the levee. Plant personnel carry on their person a two-way radio with a broadcast range that covers the entire plant.

6. Equipment available for employee safety and procedures for using the equipment

General

All employees that are involved in oil-handling activities, such as the operation or maintenance of oil storage tanks, or the operation of equipment related to storage tanks, are required to receive plant specific training. Likewise, new employees hired after the training program has been initiated must receive the training before they can be included on the Spill Response Team.

Employees are required to undergo eight hours of refresher training annually. The plant specific training includes, but is not limited to, the following areas:

- ❑ Training in correct oil handling and storage equipment operation and maintenance
- ❑ General plant operations
- ❑ Discharge prevention laws and regulations
- ❑ Contents of the SPCC Plan and Facility Response Plan (FRP) for the plant
- ❑ Any additional health and safety training required under Occupation Safety and Health Administration (OSHA) regulations at 29 CFR 1910.120 and under identical worker protection standards at 40 CFR 311 that apply to employees in states without OSHA-approved State plans.

In addition to annual training, employees will participate in periodic discharge prevention meetings. In these meetings, the plant's SPCC plan is discussed as well as spill prevention at the plant.

Knowledge, Skills, and Training

- ❑ All employees that are involved in oil-handling activities must have basic training in, and knowledge of:
 - Mechanical principles (equipment operation, tool use, vacuum and pressure forces, impact of heat applied to asphalt cement, fluid dynamics, and heat transfer)
 - Product knowledge (physical and chemical characteristics of asphalt cement, hazards associated with asphalt cement, and how asphalt cement is typically handled and stored))
 - Plant specific knowledge: EH&S guidelines, HAZOP, HAZCOM, production, plant rules, emergency response, equipment start-up/shut down, material measurement, work instructions, record keeping)
 - Manufacturing and Quality assurance(scheduling, process control, specifications, customer requirements, production controls, sampling, testing, inspection, documentation)

Tools and Equipment

- ❑ Personal Protection Equipment (PPE)
 - Appropriate hand protection – Gloves with a cuff that is long enough to cover any skin that may be exposed when extending arm (Recommend: Rubber gloves when working with or near condensate lines; General Leather work gloves when working with tools and “non-steam” and “non-condensate” applications)
 - Appropriate face shield when working on equipment when there is a potential to release liquid asphalt cement (i.e., fittings under pressure, flanges). The face shield should extend below the operator's chin and should help prevent any type of splash onto the operator's face or neck.
 - Long Sleeve Cotton Shirt (Cotton is recommended as it protects better than a cotton/poly blend fabric)
 - Cotton Pants (Cotton is recommended as it protects better than a cotton/poly blend fabric)
 - Safety Glasses

- Hard Hat
 - Hearing Protection
- Valve wrench (If needed for opening process equipment)
- Pipe wrench
- Communication equipment (typically a two-way radio)
- H₂S Monitor
- Tool Belt (recommended to ensure the operator has the ability to maintain three points of contact while ascending/descending the rail car)
- Secondary Valve – Must be connected

7. Procedures and limitations for movement of tank cars in the vicinity of the transfer plant

When cars are positioned for transfer, the access gate is locked, “blue” caution signs are placed on the open ends of the track, the brakes are set, and a wheel chocked on each car connected to the steam-heating process. Unless instructed and monitored by the plant, the railroad may not occupy the same track of a tank car connected to a steam-heating connection.

8. Testing and maintenance of system components

Tanks, piping, secondary containment, and response equipment are inspected regularly. Employees are trained to be observant for leaks during daily duties at the plant. These inspections are documented in the SPCC Plan. In addition, documented tank, piping, and secondary containment inspections are performed monthly, and documented response equipment inspections are performed monthly. Tanks are periodically inspected and integrity tested as referenced in the SPCC Plan.

The plant only uses above ground product transfer piping. The only below grade piping at the Plant is out of service and is capped at both ends and labeled “Out of Service”. Employees are instructed to be alert for signs of leakage or deterioration of aboveground piping systems during normal work activities. If there are any signs of leakage or deterioration of piping, a record is made on the Daily SPCC Inspection Document

9. Training requirements for designated employees responsible for monitoring the transfer facility

All employees responsible for monitoring the transfer process are trained on the rail unloading procedure and emergency notification procedures in accordance with 49 CFR Subpart H.

10. Procedural steps in the event of an emergency

In the event of an emergency, the transfer process will be shut down immediately. The plant facility manager and the appropriate response team will be notified to assist with the emergency.

11. Procedures for reviewing incidents to determine whether the written procedures require revision or modification to prevent future occurrences.

There is a formal incident investigation procedure in place whenever an incident occurs. This procedure includes procedure reviews, root-cause analysis, and regional management review. In addition, existing written procedures are reviewed annually.

12. A statement about the facility's liaison with fire, police, and other appropriate government officials concerning responsibilities and resources for responding to an emergency.

This plant has an excellent relationship with the local emergency response team. Koch has participated in joint training exercises; which include fire fighting training sessions and FRP deployments of boat and spill boom. Koch also loans safety equipment to local officials when needed.

PROCEDURE STEPS FOR UNLOADING ASPHALT

1. General Pre-Start Guidelines

- 1.1. Begin process of completing KMC Rail Car Inspection document.
- 1.2. Determine contents of each rail car and determine which in-plant tank will receive product from the rail car.
- 1.3. Check paperwork to match the reporting marks and car number with the bill of lading (BOL) – do not proceed unless the paperwork is in order.
- 1.4. Check for proper placarding, if required, and that the placard matches the BOL.
- 1.5. Place sign stating, "Stop – Railcars Connected" at the "free ends" of a series of coupled rail cars.
- 1.6. Place wheel chocks on all cars to be unloaded and, if applicable, set the handbrakes.

2. Prepare the rail car for heating

- 2.1. **Caution:** All connections to the bottom outlet valve, rail car steam valve, and rail car condensate return valve must be completed before climbing the ladder on the rail car.
- 2.2. Before connecting the steam-heating connections to the rail car, verify that the bottom outlet valve is closed and secured. Do not use the position of the valve as the only guide. Determine the valve position by viewing the valve stem orientation. Check for cracks and evidence of leaks in the valve body and tampering. Check for the need for the valve handle to be repaired or replaced. If there are any uncertainties, contact an operator for help in determining the valve status.
- 2.3. If there are no signs of leakage, remove the bottom outlet cap. Steam may be needed to "free" the cap. If needed and before turning the steam on, ensure the steam hose is securely supported so it will not "whip" back and forth under the rail car. (One method to support the steam hose is to place it inside of a larger diameter plastic pipe. Rest the hard plastic pipe on the ladder so the steam can be applied to the bottom outlet cap.) Once the steam hose is secured, turn the steam on. After a few minutes, shut the steam off and determine if the cap is "free." If so, remove the cap by turning it in a counter clockwise rotation.
- 2.4. **Note:** the bottom outlet cap should not be turned more than one quarter of a rotation at a time.
- 2.5. **Caution:** As the cap is removed, it is imperative to look for any indication of product on the threads or inside of the bottom outlet cap. DO NOT PUT YOURSELF DIRECTLY BELOW THE BOTTOM OUTLET CAP. Appropriate drip collection devices must be placed below the bottom outlet valve in the event that there is product contained in the cap.
- 2.6. After removing the cap, connect the transfer hose to the bottom outlet valve (elbow and/or secondary valve may be used).
- 2.7. **Note:** The other end of the transfer hose is connected to the product line manifold within the plant.
- 2.8. Before connecting the steam connection, open the supply valve for three to five seconds to ensure that there is no sediment in the hose or line then close steam supply valve.
- 2.9. Connect the steam line by hand tightening the steam fitting to the bottom outlet valve on the rail car. Depending upon the type of fittings, additional tightening with a wrench may be required.
- 2.10. **Caution:** The steam connection must be secured prior to "clearing" the line. Failing to secure the hose could result in a "whipping" type motion that could hit the operator and/or damage equipment in the area.

- 2.11. Once the condensate line is “clear,” shut off the steam supply and connect the condensate return line to the condensate line at the plant. Once the condensate line has been connected to the plant's line, prepare to climb the ladder on the rail car.
- 2.12. Notify another operator that you are about to proceed to the top of the rail car before climbing ladder.
- 2.13. Climb the rail car ladder. A tool belt should be used if the operator is unable to maintain three points of contact while climbing the ladder. Once on top of the rail car at the hinged manway cover, loosen and remove all bolts, except the two bolts at the “unlock point” of the manway cover. The two bolts left on the cover during the steaming process should be loose so at least half of the bolt threads between the manway cover and the nut can be seen.
- 2.14. **Caution:** If there is a need to check the contents of the rail car before steaming, use appropriate tools to open the manway cover to protect against back injury.
- 2.15. **Note:** If the manway cover is completely opened before steaming, the cover cannot remain completely open. It cannot be open more than one inch during the steam-heating process – prop the cover open by swinging a bolt over the opening and rest the hinged manway cover on the bolt.
- 2.16. With the exception of the front two bolts, remove all other bolts and climb down the ladder.
- 2.17. Open the steam supply line and the condensate return line and begin heating the contents of the railcar.

3. Unload procedure

- 3.1. When the product within the rail car is at the proper pumping temperature, gauge destination tank to ensure that there is sufficient room for rail car contents by completing an unload transfer card. If there is enough room, prepare the destination tank to receive product. If there is not enough room, contact the appropriate plant personnel before starting the unloading process.
- 3.2. THE REMAINING TWO BOLTS IN THE HINGED MANWAY COVER MUST BE COMPLETELY REMOVED AND THE HINGED MANWAY COVER MUST BE LEFT OPEN. THE MANWAY COVER CAN REST ON BOLTS “FLIPPED BACK” ONTO THE BOLT HOLES.
- 3.3. FAILURE TO HAVE THE HINGED MANWAY COVER OPEN DURING THE UNLOADING PROCESS WILL RESULT IN CATASTROPHIC DAMAGE TO THE RAIL CAR.
- 3.4. Turn on the unloading pump.
- 3.5. Open the appropriate valve at unloading line.
- 3.6. Open the bottom outlet valve on the rail car and watch for product moving through the hose. If product is not moving, close the appropriate valves, turn off the pump and contact the appropriate plant personnel.
- 3.7. **CAUTION:** Keep away from the transfer line when opening the valves to begin unloading.
- 3.8. When the rail car is pumping normally, follow these steps for shutting off the steam supply.
 - 3.8.1. Close the plant's steam supply valve and condensate return valves
 - 3.8.2. Open condensate drain valve to relieve rail car steam pressure and drain condensate from the rail car.
 - 3.8.3. **CAUTION:** Excessive noise may result while relieving steam. Wear hearing protection as needed.

- 3.9. Once condensate is drained from rail car, remove the steam connection from the rail car. Drain steam hoses and secure them away from the tank car. Avoid contact with hot water collected inside of hoses.
- 3.10. **CAUTION:** Hot condensate may remain in the hoses and drain out once disconnected from the car – Keep away from the steam line while disconnecting hoses.
- 3.11. Once the unload process has begun, the designated unloader must stay continuously monitor the car. The unloader must also ensure that other employees within the plant are monitoring the flow of product from the rail car to the receiving tank.

4. Shut down

- 4.1. Climb up the ladder on the rail car and visually inspect tank car contents through the opened manway cover to ensure that the tank car is completely unloaded before disconnecting discharge hoses. If there is product that can still be pumped from the rail car, continue the unload process. If the tank car is empty, climb down the ladder. Close the bottom outlet valve and disconnect the unloading connection from the rail car.
- 4.2. Lift and drain the unloading connection to the manifold. The unload connection should be positioned so any product remaining in the transfer line can drain into an appropriate collection device.
- 4.3. Close the manifold valve.
- 4.4. If there are no other rail cars being off loaded, shut off the pump and close all appropriate piping valves and tank valves. If other rail cars are still being off-loaded, continue to run the pump.
- 4.5. Replace tank car bottom outlet cap, and secure it with a 36-inch pipe wrench.
- 4.6. Climb the ladder of the rail car and close the tank car hinged manway cover and secure the bolts and nuts on the cover with a wrench.
- 4.7. Before releasing the empty tank car to the railroad, complete the KMC Rail Car Inspection Checklist.
- 4.8. If any repairs are needed on the car, forward the KMC Rail Car Inspection Checklist to Wichita (see Bad Order contact info on checklist).

5. Hydrogen Sulfide (H₂S) in Asphalt Storage Tanks and Tank Cars

- 5.1. Experience has shown that under normal conditions, there is little danger to persons gauging or sampling asphalt storage tanks or tank cars due to hydrogen sulfide fumes. Hydrogen sulfide in dangerous concentrations has been measure inside asphalt storage tanks, but measurements a foot or more away from hatch openings have not shown hazardous levels. The following precautions should be followed during asphalt rail car loading or unloading:
 - 5.1.1. A H₂S monitor must be worn within the breathing zone.
 - 5.1.2. Always stand upwind of hatches, dome covers, or other openings.
 - 5.1.3. Keep breathing zone (face) at least two feet from openings at all times.
 - 5.1.4. Avoid breathing any vapors that might be present when initially opening asphalt cement tank cars, tanks, or vessels.

Exemption Compliance Check Sheet



	Plant Location:	
	Date of Preparation:	
	Approved by:	
	Corporate Approval:	

Item	Description	
1	A physical description of the plant, including the hours of operation.	
2	A drawing of the transfer facility showing natural and manmade barriers, locations of protective equipment, locations of emergency equipment, and locations of signaling equipment.	
3	Procedures for monitoring the transfer facility.	
4	Information on the contents of the tank car.	
5	Procedures for securing the transfer facility.	
6	Equipment available for employee safety and procedures for using the equipment.	
7	Procedures and limitations for movement of tank cars near the transfer facility.	
8	Testing and maintenance of system components.	
9	Training requirements for designated employees responsible for monitoring the transfer facility.	
10	Procedural steps in the event of an emergency.	
11	Procedures for reviewing incidents to determine whether the written procedures require revision or modification to prevent future occurrences.	
12	A statement about the plant's liaison with fire, police, and other appropriate government officials concerning responsibilities and resources for responding to an emergency.	
13	A "blue" caution sign on the open-end(s) of the track to provide the necessary warning to railroad workers.	
14	Display a warning sign(s) indicating the presence of the steam connection, the opened hinged manway, and to observe for any "spilled" or "flowing" asphalt	
15	Adequate lighting to the unloading area to ensure that railroad and Koch workers can visually see the warning sign(s) and determine the presence of any thermal hazard.	